DOCUMENT RESUME

ED 160 343 SE 024 343

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TITLE Attitudes and Knowledge: Results of a Field Test in Cancer Education for Teachers.
PUB DATE Apr 78
NOTE 15p.; Paper presented at the annual meeting of the National Association for Research in Science Teaching (51st, Toronto, Canada, March 31-April 2, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Diseases; Educational Research; *Inservice Teacher Education; *Medical Education; Pathology; Science Education; *Teacher Attitudes; *Teachers; Workshops
IDENTIFIERS *Cancer Education; Research Reports

ABSTRACT

The purpose of the reported program was to: (1) provide teachers and school nurses with a new credit program, and (2) identify an effective model to enhance adult learning in and attitudes toward cancer education. A workshop entitled "An Introduction to Cancer Education for School Personnel," consisting of two full-day Saturday sessions, was held in various regions of Pennsylvania and attended by inservice teachers and school nurses. These subjects and a control group were administered a pre- and posttest. As a result, the subjects showed an increase in knowledge of cancer and a shift in attitude. (BB)

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ATTITUDES AND KNOWLEDGE:
RESULTS OF A FIELD TEST IN CANCER EDUCATION FOR TEACHERS

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Paper presentation at NARST Annual Meeting, March 31-April 2, 1978, Toronto, Canada. Printed in U.S.A.

SE 024 343

Introduction

A common problem faced by many school districts is the stabilizing of its faculty. This reality brings with it the challenge within education to provide courses and programs of current educational value for inservice teachers. "A major component of our fear of cancer for example may be fear of the unknown (Culliton and Waterfall, 1975)." Based on the realities that every year in the United States, 300,000 men, women and children die of cancer and the need for public education about current cancer facts, a pilot program was designed to meet the need. Biology educators can be instrumental in this type of educational endeavor. This study is but a small example of the educational challenge ahead. Different learning models were evaluated with respect to adult learning and attitude change in cancer education.

Purpose of the Study

The purpose of the program was to provide a specific group, namely, teachers and school nurses, in several regions of Pennsylvania with a new credit program, An Introduction to Cancer Education for School Personnel, through the Department of Health Education, Penn State University, Continuing Education. Secondly, the authors were interested in identifying effective models to enhance adult learning in and attitudes toward cancer education.

Method

A sequence of two full-day Saturday sessions were held in different regions of Pennsylvania. Inservice teachers and school nurses (N=115) enrolled for the workshop and were involved in a series of educational experiences as stated in the program objectives (See Table 1).

In order to evaluate the program effects on the participants, a control group was used (Campbell & Stanley, 1963).

All groups were posttested at the conclusion of the workshop. The data were analyzed for both cognitive learning and attitudinal shifts in the area of Cancer Education. See Table 2 for variables being evaluated in the study.

It was also important to evaluate the criterion test reliability. Based on Kuder-Richardson reliability readings, the 30-item criterion referenced test was an above average predictor with a reliability of .67.

Treatment Experience

Groups involved in the Cancer Education program experienced varying combinations of learning cues designed to enhance learning. Group A experienced all learning cues (pretest, objectives and posttest). Group B had only a posttest and was the Control in the study. Group C experienced a partial set of learning cues (objectives and posttest). Group D experienced a partial set of learning cues (pretest and posttest). All groups responded to attitude questions.

Results and Discussion of the Field Test

Cognitive:

Results of the workshop sessions indicate that teachers' posttest scores in Group A showed significant gains (Table 3). Group A experienced pretest, objectives and posttest. In other words, this group had all variables identified as learning cues or learning strategies. Based on these findings it might be generalized that teachers and nurses in Group A benefited by having access to combined learning cues when compared to some other groups. Group A had a higher overall posttest mean score of 25.2 than any other group in the study. Note that Group C had the lowest overall posttest mean score of 22.9. This group experienced objectives and posttest. On the other hand Group B achieved almost as high posttest scores as Group A. Participants in Group B had the posttest only. This group experienced no other learning cues. If the data is accepted and it is established that the instructors did not bias the group by subtle compensations, then the data might be interpreted as follows: Group A experiencing all learning cues in combination (pretest, objectives, posttest) and group B experiencing no learning cues (posttest only) achieved better overall posttest scores than Groups C and D receiving partial sets of learning cues. See tables 4-5 for summary data information. The investigators urge other researchers to pursue the impact of learning cues on adult populations. The data gathered in this study may indicate that incomplete sets of learning cues could interfere with learning for some students.

Affective:

Embedded into the posttest were five attitudinal questions. Each student responded to the questions on a scale of SA (strongly agree) to SD (strong disagree). These questions were analyzed to evaluate any change of attitude that might have occurred during the two Saturday sessions. Based on the findings it can be said that significant shifts occured among the groups with special attention given to items 1 and 4 (Table 7). Group A (Table 6) experienced greater positive attitudinal variance than any other group. For example, based on the statement Cancer is a deadly disease, the following attitudinal choices occured in Groups A, B, C and D:

Group A was identified on the scale between undecided and disagree.

Group B was identified on the scale at strongly agree.

Groups C and D were identified on the scale at agree.

Variance was also noted on item 4; The Word Cancer Frightens Me.

See tables 6, 7, and 8 for complete attitudinal data on all groups based on the five items.

Group A showed significancly more positive feelings on all items based on post attitudinal data (Table 6).

Table 6: Summary Table Attitudes

Group A(N=25) Attitude - Scale 1-5
(Strongly Agree-Strongly Disagree)

Item	Pre Attitude	Post Attitude	F-Ratio	Probability
1	1.5	3.3	48.6	0.001*
2	3.9	4.0	0.27	0.61
3	4.0	4.4	4.36	0.05*
4	2.2	2.6	7.19	0.01*
5	4.0	4.2	5.20	0.03*

*p. $<$ .05

All items received POSITIVE attitude shifts. Items 1, 3,4,5 shifted significantly for all participants in Group A. Item 2 remained stable.

Implications

Based on the findings in this field test on Cancer Education for Teachers in Pennsylvania during 1976-77, the authors believe that continued cooperative efforts of university faculty, biology teachers and local cancer society agencies can have a positive impact on students and adults. We believe that through educational efforts early cancer detection will increase as attitudes become more positive in that regard. Fear of the truth has taken far too many lives - education is the key. Most participants achieved the objectives. Based on the study, some groups gained significantly. During the course, some participants demonstrated a positive shift in attitude with respect to learning about cancer.

The models used in the study indicated varying effects on overall learning and attitude outcomes. More research is necessary to identify efficient learning models for adults in the fight against ignorance and fear of Cancer. The authors are indeed grateful for the sincere cooperative spirit that prevailed during this study among the teaching staff and the Pennsylvania Division of the American Cancer Society.

Table 1

Program Objectives

Objectives:	Participants will be involved in cognitive and affective learning. At the conclusion of the workshop, the participants will: 1. Have basic understandings of cancer as shown by enhanced posttest scores. 2. Have planned and written two lessons, utilizing American Cancer Society materials, as examples of integrating cancer education into subject areas. 3. Have an awareness of the role of community agencies through identification of approaches used around the State utilizing American Cancer Society programs. 4. Become sensitive to consumer concerns related to health services by participating in small group activities.
REQUIRED TEXT:	The Cancerous Diseases by George E. Moore, Wadsworth Publishing Co., Belmont, CA (1970)

Table 2

Variables Being Evaluated

Variables	Group	N
Pretest Objectives Posttest	A	27
Posttest	B	40
Objectives Posttest	C	21
Pretest Posttest	D	27
Attitudes	All Groups	115

Table 3

Group A Pretest-Posttest

Source	Sums of Squares	Mean Squares	DF	F-Ratio	P
Pretest	241.0	10.0	24		
Posttest	557.8	557.8	1	197.7	*0.001
Error	67.7	2.8	24		

*$p < .01$

Ss in Group A gained significantly between pre & post evaluations.

Cognitive - Group A

Pretest	Posttest
19	24
16	24
19	24
19	28
23	29
18	25
16	29
18	23
16	24
22	26
20	25
22	28
18	25
18	26
14	26
14	21
24	27
20	26
23	27
18	21
19	27
18	25
18	27
17	27
17	22

Table 4

Summary Data - Posttest All Groups

Source	N	Variance	Mean
A	27	6.01	25.2
B	40	9.23	24.0
C	21	9.93	22.9
D	27	3.56	23.4

Table 5

Analysis of Variance Summary Table

Source	Sums of Squares	Mean Squares	DF	F-Ratio	P
1	75.6	25.21	3	3.46	*0.02
error	809.8	7.3	111		

*p < .05

Table 7

Attitudinal Data

	Statement	Group	Attitude
1.	Cancer is a deadly disease	A*	undecided - disagree
		B*	strongly agree
		C*	agree
		D*	agree
2.	Nothing a person does will decrease their likelihood of developing cancer	A	disagree
		B	disagree
		C	disagree
		D	disagree
3.	Even when a patient is diagnosed and treated early the chances of survival for most types of cancer is still poor.	A	disagree
		B	disagree
		C	disagree
		D	disagree
4.	The word Cancer frightens me	A*	undecided
		B*	strongly agree
		C*	agree
		D	agree to undecided
5.	The cancer patient lives a short and unpleasant life.	A	disagree
		B	undecided
		C	disagree
		D	disagree

* $p < .05$

Table 8
Pairwise Contrasts on Simple and/or Main Effects
on Means after ANOVA:
Group A - Item 1 Attitude

Group Contrast	Obtained T Statistic	Critical Value of T
A with B	*5.37	2.64
A with C	*3.32	2.64
A with D	*2.82	2.64

*$p < .05$

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